

REMARKS/ARGUMENTS

On page 2 of the Office Action, the Examiner objected to the drawings due to various informalities. Applicant has amended the drawings as shown. These amendments do not introduce new matter.

In paragraph 2 of the Office Action, the Examiner rejected claims 7 and 10-22 due to various informalities. Applicant has amended the claims as shown and believes they are now in good form.

In paragraphs 3 and 4 of the Office Action, the Examiner rejected claim 12 under 35 USC 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Applicant has amended claim 12 to positively recite the second pin. Applicant believes this claim is now in good form.

In paragraphs 5-6 of the Office Action, the Examiner rejected claims 1, 3-5, 7-9 and 11 under 35 USC 102(b) as being anticipated by Hayashi (US 5,284,397). In view of the claims as now presented and for the reasons discussed below, Applicant believes these claims are now in good form and not anticipated by Hayashi.

Hayashi discloses a joint apparatus which has a spherical bearing member which is outsert-molded at the end of a rod, a spherical shaft inserted to the spherical bearing member rotatably in three-dimensional directions, a circular concave portion provided at the top of the spherical shaft, and a convex portion provided in protrusion at the spherical bearing member and inserted into the concave portion. The convex portion is formed to have the width perpendicular to the axis of the rod, being larger than the longitudinal width.

In contrast, Applicant's embodiments of claims 1 and 11 cover a ball having a pin and a recess of substantially the same diameter (claim 1) or dimension (claim 11).

In one illustrative embodiment, a ball pin is to have a generally cylindrical recess on the top of the ball portion and a generally cylindrical pin portion on the opposite side whereby the diameters of the recess and of the pin are substantially the same. In the case of a single ball joint, the pin portion is inserted into a bore of a lever or the like and the ball

Response to Office Action Mailed 07/12/2007
Serial No. 10/537,937
Examiner: Ferguson, Michael P.
VAL 204 P2 – WDE 0555

portion is to be coupled with another link via a ball cap in well known manner. In the case of a double ball joint the embodiment enables one to fix two ball pins in a very easy way by press fitting of the pin of a second ball pin into the recess of the first ball pin and by fixing of the pin of the first ball pin onto a lever or the like. In a similar way, you can create a triple ball joint using the embodiments of claims 1 and 11.

Applicant has amended claim 1 to recite that the ball pin comprises a ball and a pin and that the recess of the ball comprises a diameter that is substantially the same as a diameter of the pin. As understood, Hayashi also cannot teach of a diameter of a pin of a second ball being substantially the same as a diameter of a recess in the first ball so that the balls can be press fitted together in the manner claimed.

In this regard, Hayashi seems to oppose the Examiners argumentation and does not appear to teach, describe or show that the diameter of the recess and of the pin is "**approximately**" the same or "is the same". The Examiner refers to the dotted lines in Figs. 2 or 3 which may indicate a kind of pin portion of the ball pin, but the dotted lines do not appear to define a cylindrical pin, i.e., a circular cross section.

Further, the distance between the dotted lines (even if it would be seen as a diameter) is clearly bigger (20% or even more) than the diameter of the recess, so it can not be seen as "**approximately the same**" and especially not as substantially "**the same**". Moreover, a pin with a 20% bigger diameter than the recess cannot be inserted or press fitted into this recess.

Additionally, Hayashi does not suggest to design the ball pin such that it can be easily mounted to another one by press fitting to make a double ball pin.

For all the foregoing reasons and in view of the claims as now presented, Applicant believes that these claims are not anticipated by Hayashi.

In paragraph 7 of the Office Action, the Examiner rejected claims 1, 3-6, 8, 10, 11, 14-19 and 22 under 35 USC 102(b) as being anticipated by Hathaway (US 6,352,227). For the reasons discussed above and in view of the claims as now presented and also for the following reasons, Applicant believes that these claims are not anticipated by Hathaway.

Response to Office Action Mailed 07/12/2007
Serial No. 10/537,937
Examiner: Ferguson, Michael P.
VAL 204 P2 – WDE 0555

Hathaway discloses a segmented, ball jointed support, which is an improvement over other support devices which make use of ball joints to provide universal flexibility of the support. This support is made up of a plurality of individual hollow segments, each segment shaft having a male ball at one end that is received by an adjacent segment's female socket. The socket is sized to fit snugly over the received ball. A spring-detent arrangement within the segment shaft acts against a receiving hole at the top of the corresponding ball. The spring-detent allows the ball joint to be "snap returned" to a straight, axially aligned arrangement. The spring-detent also provides greater joint stability over a longer length of assembled support, without compromising useful flexibility of the support. A radial compression device around the segment socket maintains appropriate joint tightness and compensates for joint wear. The segment shafts are manufactured of varied lengths to accommodate differing flexibility needs of the assembled support, depending on its intended use. The support can be free standing or made part of or integrated into another system.

As understood, Hathaway does not show a ball having a recess that has a dimension or a diameter that is substantially the same as a dimension or diameter of a pin, whether it is a pin connected to the ball or a pin of a second ball. In fact, it appears that the Hathaway device utilizes a socket that is mounted over a ball and not mounted into a recess in order to connect a second ball to a first ball. Accordingly, Hathaway actually teaches away from Applicant's invention of providing a first ball having a recess that is capable of receiving a pin of a second ball dimensioned such that it can be press fitted or secured to the ball. In view of the foregoing and further in view of the amendments to claims 1 and 11, Applicant believes these claims and related dependent claims are not obvious in view of Hathaway.

In paragraphs 8-11 of the Office Action, the Examiner rejected various dependent claims under 35 USC 103(a) as being unpatentable over Hathaway or Hayashi, taken alone or in combination with Sugiura (US 5,860,757). For the reasons stated earlier herein and in view of the claims as now presented and also for the following reasons, Applicant believes that these claims are not obvious in view of the cited references.

As to Sugiura, Sugiura discloses a ball joint comprises a metallic stud bolt having a male screw on one end side and a spread portion on the other end side, a resin ball

Response to Office Action Mailed 07/12/2007
Serial No. 10/537,937
Examiner: Ferguson, Michael P.
VAL 204 P2 – WDE 0555

member of synthetic resin having a spherical portion covering the spread portion, and a ball seat of synthetic resin having a spherical recess in which the spherical portion is fitted for relative rotation and rocking motion. A nut is fitted on the male screw. A noncircular detent portion including serrations or the like is formed on the outer peripheral surface of the spread portion. A flange portion is formed integral with the stud bolt on the intermediate portion in the axial direction. The resin ball member has a cylindrical portion integral with it, and a dust cover fixing projection is formed integral with the cylindrical portion. An end portion of a dust cover is held between the projection and the flange portion.

Again, the reference fails to teach of claims 1 and 11 and presented. The dependent claims include limitations in addition to the limitations of their base claim and any intervening claims and accordingly for the reasons set forth earlier herein relative to Hayashi and Hathaway, Applicant believes these claims are not obvious in view of the cited references.

Applicant can find no teaching in Sugiura or Hayashi which leads one to combine the references as suggested by the Examiner. It seems that the problem to which the Sugiura reference is addressed is manufacturing, while the problems sought to be overcome in the Hayashi reference dealt with controlling the coupling of rods so that the angle of oscillation in a joint apparatus, such as between a crank arm and a rod may be controlled. Applicant can find no motivation that would suggest the combination of Hayashi with Sugiura.

Even if it were obvious to combine the references as the Examiner suggests, Applicant believes that the references still fail to teach of the limitations of claim 2 when viewed in combination with the limitations of the amended claim 1 as now presented.

For all the foregoing reasons and in view of the claims as now presented, Applicant believes that the pending claims are neither anticipated by nor obvious in view of the cited references. Applicant accordingly respectfully request that the application now be allowed.

The Commissioner is hereby authorized to charge any additional fees under 37 C.F.R. 1.16 and 1.17 which may be required by this paper, or to credit any overpayment, to **Deposit Account No. 50-1287**. Applicant hereby provides a general request for any extension of time which may be required at any time during the prosecution of the

Response to Office Action Mailed 07/12/2007
Serial No. 10/537,937
Examiner: Ferguson, Michael P.
VAL 204 P2 – WDE 0555

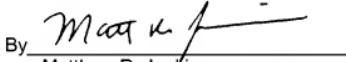
application. The Commissioner is also authorized to charge any fees which have not been previously paid for by check and which are required during the prosecution of this application to **Deposit Account No. 50-1287**. (Should Deposit Account No. 50-1287 be deficient, please charge any further deficiencies to Deposit Account No. 10-0220.)

Applicant invites the Examiner to contact the undersigned via telephone with any questions or comments regarding this case. **Applicant respectfully requests an interview with the Examiner is this Amendment does not place this case in condition for allowance.**

Reconsideration and favorable action are respectfully requested.

Respectfully submitted,

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